

## NASA Space Science Days : An Out of School Program Using National Partnerships to Further Influence Future Scientists and Engineers.

Charles Galindo<sup>1</sup>, Jaclyn Allen<sup>2</sup>, Javier Garcia<sup>3</sup>, Stephanie Herrera<sup>4</sup>  
<sup>1</sup> MEI Technologies, <sup>2</sup>Hamilton-Sundstrand, <sup>3</sup> University of Texas Brownsville, <sup>4</sup>The Society of Hispanic Professional Engineers

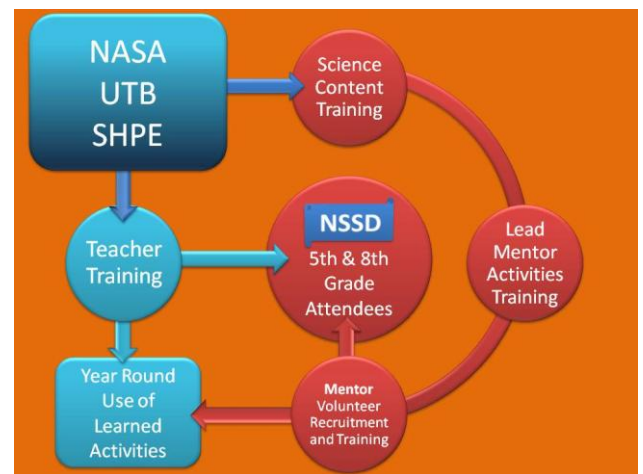
**Introduction:** The National Math and Science Initiative states that “American students are falling behind in the essential subjects of math and science, putting our position in the global economy at risk” a foreboding statement that has caused the U.S. to re-evaluate how we view STEM education. Developing science and engineering related out of school programs that expose middle school students to math and science in a nontraditional university environment has the potential to motivate young students to look at the physical sciences in an exciting out of the norm environment.

**Background:** NASA Space Science Days (NSSD) was established in 2004 to bring the story of the Mars Exploration Rovers (MER) to a community far removed from areas NASA traditionally serves. The original NASA Space Science Day invited 400 5th and 8th graders from the Texas Rio Grande Valley area to the University of Texas Brownsville campus to participate in a one day Saturday event filled with information about MER with related hands on activities. Currently the program has grown to over 700 5th and 8th grade participants who are mentored by trained university students from six universities and community colleges throughout the U.S. The current plan includes adding three more new university sites in 2012.

**The Partnership:** A collaboration between three major institutions: The NASA Johnson Space Center (JSC), Astromaterials Research and Exploration Science Directorate (ARES), the Society of Hispanic Professional Engineers Foundation and the University of Texas at Brownsville (UTB) has been established to enable the dissemination of Solar System related educational materials throughout the U.S. Already in its 9th year, UTB has developed and tested a NSSD model that has successfully disseminated space science materials to students throughout South Texas Rio Grande Valley. This model’s expansion to include a well established professional organization has allowed trained SHPE student and professional chapter mentors to conduct events throughout its nation-wide delivery systems.

**Summary of Program:** Each year a new NSSD site will be established through an application process solicited from SHPE student and professional chapters. Once a chapter is awarded, upper-level high school and university students travel to NASA- JSC for a two and a half day workshop where students learn about the current year’s science theme through interactive pres-

entations from SMD scientists and engineers. Students also tour laboratories where they are exposed to the engineering models currently being designed to answer future mission science questions. Additional training by NSSD staff (partners) occurs one to two months before the newly selected event site in their own communities. Both local middle school teachers and mentors are trained locally. This allows the teachers time to prepare their students with the background material for NSSD and give the SHPE mentors time to own and practice an activity they will present to the middle schools students at the NSSD event.



**Conclusions:** Originally thought to be a program solely directed towards exposing middle schools students to space science, the roll of the university/college students has shown an even greater encompassing benefit of the program. SHPE undergraduate students who are predominantly engineering majors have embraced the science behind NASA’s discovery missions and have a better understanding of the marriage of science and engineering. Included are also the high school students supporting the lead undergraduate mentors assisting and sometimes presenting to the middle school attendees themselves once they feel they have mastered the concepts creating a top down mentorship pipeline!

**Additional Information:** This work is funded under a NASA EPOESS grant through the Science Mission Directorate. For additional information on NASA Space Science Days , contact Charles Galindo at charles.galindo-1@nasa.gov.